

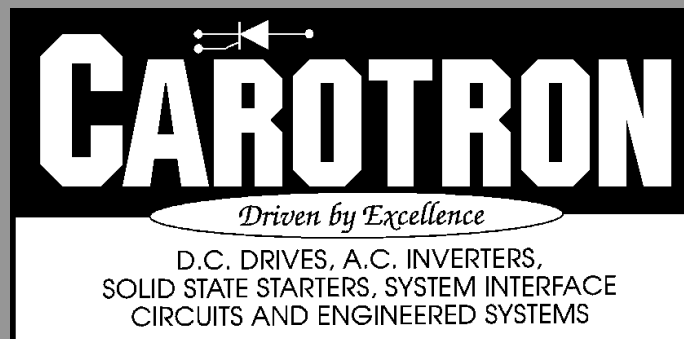
AM-1000 LOOM TAKEUP

Instruction Manual

AM1000-000

AM1000-001

AM1000-002



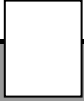


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General Description

The AM-1000-XXX series of drives is designed to run either a 1/4 or 1/2 horsepower (HP) permanent magnet (PM) DC motor. The AM-1000 series was originally an OEM product of which there were two models. The -000 model accepted a 0-10mA speed reference while the -001 model accepted a 0-10V speed reference. The current production model (-002) has a customer selectable switch (S1) that allows for either 0-10mA or 0-10V sensors.

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Specifications

2.2 Electrical

A.C. Power Input

- 115VAC $\pm 10\%$, 30A max

+15VDC Reference Output

- 50mA max

Signal Input

- Voltage Mode (S1=V)
 - 0-10VDC
 - Input Impedance: 200K Ω
- Current Mode (S1=I)
 - 0-10mA
 - Input Impedance: 470 Ω

Temperature Range

- 0-55° C

2.2 Physical

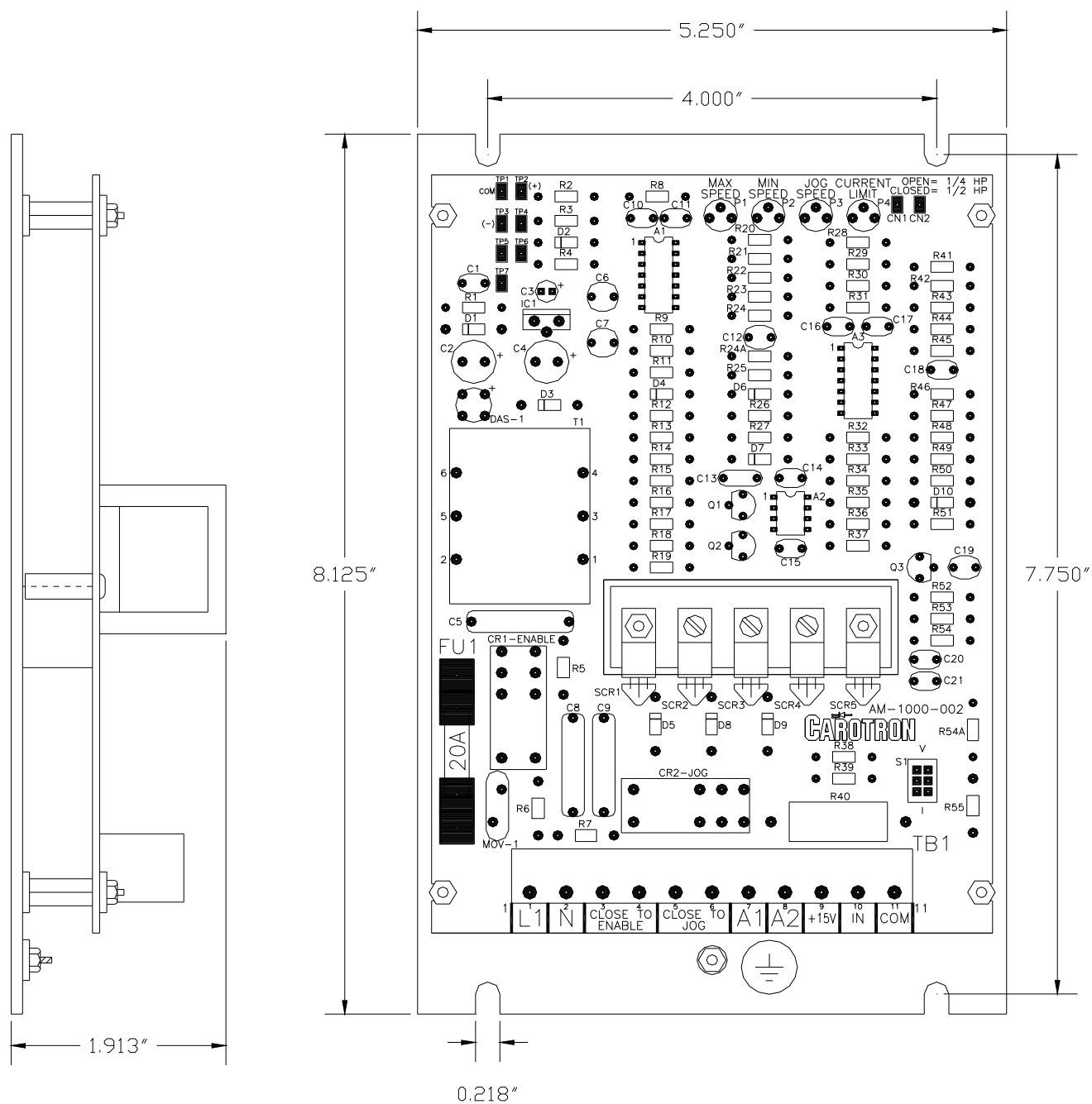


Figure 1: Physical Dimensions

3.1 Wiring Guidelines

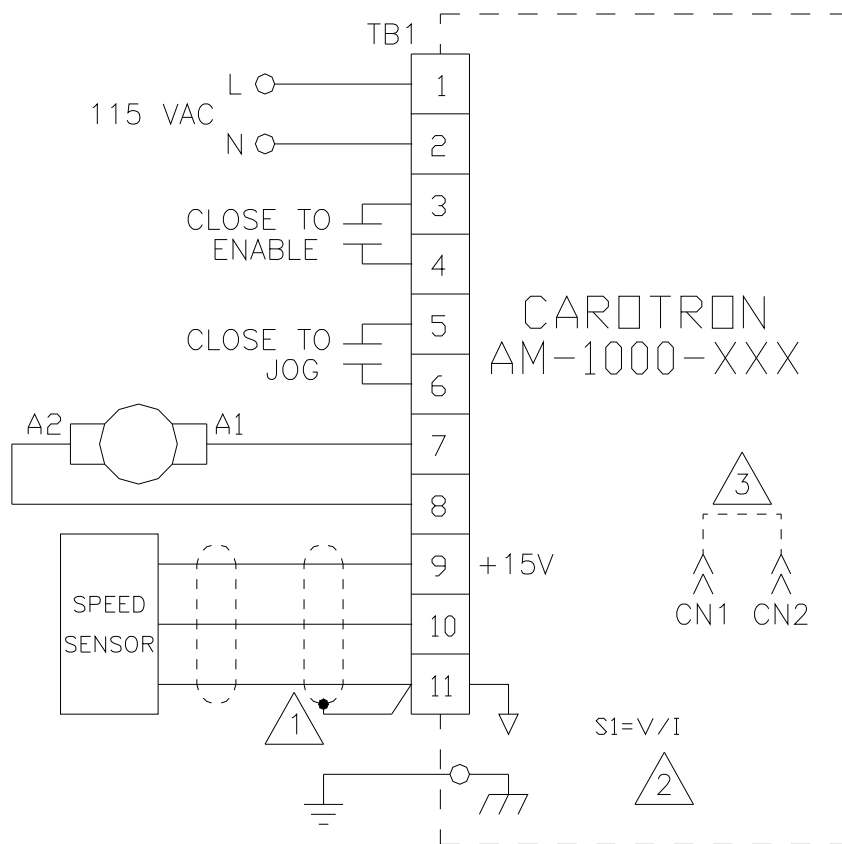
To prevent electrical interference and to minimize start-up problems, adhere to the following guidelines:

Use fully insulated and shielded cable for all signal wiring. The shield should be connected to circuit common at one end only. The other end of the shield should be clipped and insulated to prevent the possibility of accidental grounding.

Signal level wiring such as listed above should be routed separately from high level power wiring (such as the A.C. line, motor, operator control, and relay control wiring). When these two types of wire must cross, they should cross at right angles to each other.

Any relay, contactor, starter, solenoid or other electro-mechanical device located in close proximity to or on the same line supply as the AM-1000 should have a transient suppression device such as an MOV or R-C snubber connected in parallel with its coil. The suppressor should have short leads and be connected as close to the coil as possible.

3.2 Signal Connections



NOTES:

- 1** DENOTES SHIELDED CABLE. TIE SHIELD WHERE INDICATED. DO NOT TIE SHIELD TO EARTH GROUND. SHIELDS NOT SHOWN CONNECTED ARE TO BE LEFT FLOATING. TAPE UP END OF SHIELDED CABLE TO PREVENT ACCIDENTAL GROUNDING. ROUTE SHIELDED CABLE AND OTHER SIGNAL LEVEL WIRING AWAY FROM POWER WIRING.
- 2** SET SWITCH S1 TO 'I' IF A 0-10MA SENSOR IS USED. SET SWITCH S1 TO 'V' IF A 0-10V SENSOR IS USED.
- 3** CONNECT PINS CN1 & CN2 FOR 1/2HP MOTORS. LEAVE UNCONNECTED FOR 1/4HP MOTORS.

Figure 2: General Connections

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Description of Terminals

TB1-1 & 2 (AC INPUT)

These terminals are used for the A.C. line input. The AM-1000 accepts 115VAC. The circuit should be able to provide a minimum of 20A.

TB1-3 & 4 (CLOSE TO ENABLE)

Closing a set of contacts across these terminals will place the drive in the RUN mode. The motor will accelerate up to a speed determined by the signal level on terminal 10. The drive will coast to a stop when the contacts are opened.

TB1-5 & 6 (CLOSE TO JOG)

Closing a set of contacts across these terminals places the drive in the JOG mode. The motor will accelerate up to a speed set by the JOG potentiometer (P3).

TB1-7 & 8 (ARMATURE)

Motor lead A1 connects to terminal 7 and motor lead A2 connects to terminal 8. The armature leads should be switched if reverse rotation is desired.

TB1-9, 10, & 11 (SPEED REFERENCE)

Typically, an external sensor is used to provide the drive with a speed reference. Terminal 9 provides a +15VDC signal to power the sensor. The sensor provides either a 0-10mA or 0-10V signal that connects to terminal 10. Refer to switch S1. Terminal 11 is circuit common (0V).

CN1/CN2 (MOTOR HP SELECTION)

If a 1/2HP motor is used, connect a jumper from terminal CN1 to CN2. Leave disconnected for 1/4HP motors.

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Description of Features & Adjustments

P1 MAX SPEED

This potentiometer sets the maximum motor speed when the Terminal 10 speed reference is at maximum. Clockwise rotation increases speed.

P2 MIN SPEED

This potentiometer sets the minimum motor speed when the Terminal 10 speed reference is at minimum. Clockwise rotation increases the output speed.

P3 JOG SPEED

This potentiometer sets the motor speed when the drive is in the JOG mode (via terminals 5 & 6). Clockwise rotation increases the output speed.

P4 CURRENT LIMIT

This potentiometer sets the maximum motor armature current limit. Full clockwise rotation sets a maximum current level of 3.75A when a 1/4HP motor is selected or 7.5A when a 1/2HP motor is selected. Full counter-clockwise rotation sets current limit at 0A. Clockwise rotation increases the maximum current limit level.

S1 SENSOR TYPE

This switch allows for either a 0-10mA or a 0-10V sensor to be used. Place S1 in the 'I' position for current or the 'V' position for voltage.

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Adjustment Procedure



WARNING! DURING CALIBRATION, THE AM-1000 WILL PRODUCE AN OUTPUT. PLEASE DISCONNECT ANY EQUIPMENT FROM THE DRIVE THAT COULD BE DAMAGED OR CAUSE INJURY DURING THIS PROCESS.

1. Connect the AM-1000-XXX per the connection diagram. Place switch S1 in the appropriate position (I or V) based on the type of external sensor.
2. If a 1/4 HP motor is used, make no connection from CN1 to CN2. If a 1/2 HP motor is used, connect a wire jumper from CN1 to CN2.
3. With no load on the motor or machine and with the speed sensor providing minimum signal on terminal 10, apply power to the control. Place the drive in the RUN mode by closing a set of contacts across terminals 3 & 4. Increase the MIN SPEED pot (P2) clockwise until the motor just begins to creep and then CCW until the motor just stops.
4. Adjust the external sensor to provide maximum signal to terminal 10. Adjust the MAX SPEED pot (P1) until desired maximum motor speed is obtained. Open the contacts across 3 & 4 to stop the motor.
5. Place the drive in the JOG mode by closing the contacts across 5 & 6. Adjust the JOG SPEED pot (P3) until desired jog motor speed is achieved. Open the contacts to stop the drive.
6. If desired, the current limit level can be reduced by adjusting the CURRENT LIMIT pot (P4) counter-clockwise.

Standard Terms & Conditions of Sale

1. General

The Standard Terms and Conditions of Sale of Carotron, Inc. (hereinafter called "Company") are set forth as follows in order to give the Company and the Purchaser a clear understanding thereof. No additional or different terms and conditions of sale by the Company shall be binding upon the Company unless they are expressly consented to by the Company in writing. The acceptance by the Company of any order of the Purchaser is expressly conditioned upon the Purchaser's agreement to said Standard Terms and Conditions. The acceptance or acknowledgement, written, oral, by conduct or otherwise, by the Company of the Purchaser's order shall not constitute written consent by the Company to addition to or change in said Standard Terms and Conditions.

2. Prices

Prices, discounts, allowances, services and commissions are subject to change without notice. Prices shown on any Company published price list and other published literature issued by the Company are not offers to sell and are subject to express confirmation by written quotation and acknowledgement. All orders of the Purchaser are subject to acceptance, which shall not be effective unless made in writing by an authorized Company representative at its office in Heath Springs, S.C. The Company may refuse to accept any order for any reason whatsoever without incurring any liability to the Purchaser. The Company reserves the right to correct clerical and stenographic errors at any time.

3. Shipping dates

Quotation of a shipping date by the Company is based on conditions at the date upon which the quotation is made. Any such shipping date is subject to change occasioned by agreements entered into previous to the Company's acceptance of the Purchaser's order, governmental priorities, strikes, riots, fires, the elements, explosion, war, embargoes, epidemics, quarantines, acts of God, labor troubles, delays of vendors or of transportation, inability to obtain raw materials, containers or transportation or manufacturing facilities or any other cause beyond the reasonable control of the Company. In no event shall the Company be liable for consequential damages for failure to meet any shipping date resulting from any of the above causes or any other cause.

In the event of any delay in the Purchaser's accepting shipment of products or parts in accordance with scheduled shipping dates, which delay has been requested by the Purchaser, or any such delay which has been caused by lack of shipping instructions, the Company shall store all products and parts involved at the Purchaser's risk and expense and shall invoice the Purchaser for the full contract price of such products and parts on the date scheduled for shipment or on the date on which the same is ready for delivery, whichever occurs later.

4. Warranty

The Company warrants to the Purchaser that products manufactured or parts repaired by the Company, will be free, under normal use and maintenance, from defects in material and workmanship for a period of one (1) year after the shipment date from the Company's factory to the Purchaser. The Company makes no warranty concerning products manufactured by other parties.

As the Purchaser's sole and exclusive remedy under said warranty in regard to such products and parts, including but not limited to remedy for consequential damages, the Company will at its option, repair or replace without charge any product manufactured or part repaired by it, which is found to the Company's satisfaction to be so defective; provided, however, that (a) the product or part involved is returned to the Company at the location designated by the Company, transportation charges prepaid by the Purchaser; or (b) at the Company's option the product or part will be repaired or replaced in the Purchaser's plant; and also provided that (c) the Company is notified of the defect within one (1) year after the shipment date from the Company's factory of the product or part so involved.

The Company warrants to the Purchaser that any system engineered by it and started up under the supervision of an authorized Company representative will, if properly installed, operated and maintained, perform in compliance with such system's written specifications for a period of one (1) year from the date of shipment of such system.

As the Purchaser's sole and exclusive remedy under said warrant in regard to such systems, including but not limited to remedy for consequential damages, the Company will, at its option, cause, without

charges any such system to so perform, which system is found to the Company's satisfaction to have failed to so perform, or refund to the Purchaser the purchase price paid by the Purchaser to the Company in regard thereto; provided, however, that (a) Company and its representatives are permitted to inspect and work upon the system involved during reasonable hours, and (b) the Company is notified of the failure within one (1) year after date of shipment of the system so involved.

The warranties hereunder of the Company specifically exclude and do not apply to the following:

- a. Products and parts damaged or abused in shipment without fault of the Company.
- b. Defects and failures due to operation, either intentional or otherwise, (1) above or beyond rated capacities, (2) in connection with equipment not recommended by the Company, or (3) in an otherwise improper manner.
- c. Defects and failures due to misapplication, abuse, improper installation or abnormal conditions of temperature, humidity, abrasives, dirt or corrosive matter.
- d. Products, parts and systems which have been in any way tampered with or altered by any party other than an authorized Company representative.
- e. Products, parts and systems designed by the Purchaser.
- f. Any party other than the Purchaser.

The Company makes no other warranties or representation, expressed or implied, of merchantability and of fitness for a particular purpose, in regard to products manufactured, parts repaired and systems engineered by it.

5. Terms of payment

Standard terms of payment are net thirty (30) days from date of the Company invoice. For invoice purposed, delivery shall be deemed to be complete at the time the products, parts and systems are shipped from the Company and shall not be conditioned upon the start up thereof. Amounts past due are subject to a service charge of 1.5% per month or fraction thereof.

6. Order cancellation

Any cancellation by the Purchaser of any order or contract between the Company and the Purchaser must be made in writing and receive written approval of an authorized Company representative at its office in Heath Springs, S.C. In the event of any cancellation of an order by either party, the Purchaser shall pay to the Company the reasonable costs, expenses, damages and loss of profit of the Company incurred there by, including but not limited to engineering expenses and expenses caused by commitments to the suppliers of the Company's subcontractors, as determined by the Company.

7. Changes

The Purchaser may, from time to time, but only with the written consent of an authorized Company representative, make a change in specifications to products, parts or systems covered by a purchase order accepted by the company. In the event of any such changes, the Company shall be entitled to revise its price and delivery schedule under such order.

8. Returned material


If the Purchaser desires to return any product or part, written authorization thereof must first be obtained from the Company which will advise the Purchaser of the credit to be allowed and restocking charges to be paid in regard to such return. No product or part shall be returned to the Company without a "RETURN TAG" attached thereon which has been issued by the Company.

9. Packing

Published prices and quotations include the Company's standard packing for domestic shipment. Additional expenses for special packing or overseas shipments shall be paid by the Purchaser. If the Purchaser does not specify packing or accepts parts unpacked, no allowance will be made to the Purchaser in lieu of packing.

10. Standard transportation policy

Unless expressly provided in writing to the contrary, products, parts and systems are sold f.o.b. first point of shipment. Partial shipments shall be permitted, and the Company may invoice each shipment separately. Claims for non-delivery of products, parts and systems, and for damages thereto must be filed with the carrier by the Purchaser. The Company's responsibility therefor shall cease when the carrier signs for and accepts the shipment.



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3204 Rocky River Road
Heath Springs, SC 29058
Phone: 803.286.8614
Fax: 803.286.6063
Email: saleserv@carotron.com
Web: www.carotron.com
MAN1066-00 Rev. B
Issued 02-14-2023